

Rachel's Environment & Health News

#540 - History of Precaution -- Part 2

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As we saw last week, the U.S. Public Health Service held a one-day conference on May 20, 1925, to determine whether public health would be harmed if oil and automotive corporations added the toxic metal, lead, to gasoline.[1] (See REHW #539.) By 1925, lead had been a documented hazard in America for at least 100 years, but the corporations had discovered that leaded gasoline allowed them to create more powerful engines, so they started adding lead to gasoline in 1923. In the manufacture of the lead product (called tetraethyl lead by chemists, and "ethyl" by the corporations) hundreds of workers were poisoned and this created headlines. The corporations temporarily suspended sale of leaded gasoline and the U.S. Public Health Service convened a conference to determine whether (a) leaded gasoline could be safely manufactured; and (b) whether lead from automobile exhausts would harm the general public.

The morning session on May 20 was devoted to speeches by General Motors, Standard Oil of New Jersey, DuPont, and their new joint venture, Ethyl Corporation, which they had created to market leaded gasoline. The afternoon was devoted to discussions of health.

Late in the afternoon, Dr. Yandell Henderson of Yale University summarized what he had heard, as follows: "We have in this room, I find, two diametrically opposed conceptions. The men engaged in industry, chemists, and engineers, take it as a matter of course that a little thing like industrial poisoning should not be allowed to stand in the way of a great industrial advance. On the other hand, the sanitary experts take it as a matter of course that the first consideration is the health of the people." [1,pg.62]

Various speakers established that: lead would be emitted from automobile exhausts as a fine dust; lead is a potent brain-damaging poison and dust is its most dangerous form; when caged laboratory animals were dosed with automobile exhaust, lead dust built up on the bottoms of their cages; lead is a cumulative poison; it passes through the placenta and harms the unborn; it causes low birth weight, spontaneous abortion and stillbirth. (See REHW #539.) On these points, there was no disagreement.

However, views were split that day in 1925: the corporations wanted to press ahead rapidly, putting about 2 grams (1/14th of an ounce) of lead into every gallon of gasoline. Health officials, on the other hand, urged caution; they wanted to consider the consequences for public health. Without giving it a name, health officials in 1925 were embracing the principle of precautionary action, which says, first, that the burden of proof of safety should be borne by the proponent of a new technology, not by the public; and second, that, where there are threats of serious or irreversible damage, lack of scientific certainty should not be used as an excuse for postponing measures to prevent environmental degradation.[2]

For example, Yandell Henderson ended his afternoon talk by describing a recent paper by Dr. Alice Hamilton (Harvard professor, and one of the nation's acknowledged experts on lead) in the most recent JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION: "In that article, Doctor Hamilton expresses the matter as fully and as clearly as anyone possibly can. In the last sentence of her paper she sets up this very simple proposition that this substance, this new industrial hazard, should not be put into general use, or its use should not be extended until we have adequate and full information assuring us that we are not introducing another health hazard into our daily lives." [1,pg.66] A clear statement of the precautionary principle.

Professor Joseph C. Aub of Harvard calculated that if all the gasoline to be sold in 1926 were leaded, then 50,000 tons of lead would be spewed as a fine dust across America's highways, roads and urban streets. "I am not certain that this would cause poisoning," said Professor Aub, "but whether it would cause poisoning is a very serious question.... It seems to me that this should be very thoroughly investigated before tetraethyl lead is

again put on the market." [1,pgs.72-73] Another clear statement of the precautionary principle.

The American Federation of Labor (AFL) had two representatives at the conference, both of whom embraced the precautionary principle:

Grace M. Burnham, representing the Workers' Health Bureau of the AFL, said, "...I think that the United States should be self-respecting enough to realize that, when there is a public health hazard involved which affects the entire population, that hazard ought to be investigated out of public funds and by a responsible public agency. ...And I believe that until that time, and until the manufacture, distribution, and use of tetraethyl lead has been proved conclusively to be safe, its use should be discontinued." [1,pg.95]

Mr. A.L. Berres, representing the Metal Trades Department of the AFL, said, "I feel that, as has been stated here by some of the previous speakers, until such time as it can be definitely determined that there is no hazard in the manufacture and handling of this gas [leaded gasoline], its use ought to be prohibited...." [1,pg.96]

Dr. Haven Emerson, professor of public health at Columbia University in New York City summarized, "I presume that it is the inclination of every health officer to urge a continuance of the cessation of the use or sale of the ethyl gasoline which has been voluntarily determined upon by the company." [1,pg.84]

In sum, in 1925, the public health community, as represented at the May 20th conference, urged the principle of precautionary action: faced with a known hazard of unknown size, they urged that the hazard by prevented.

The corporations, on the other hand, used arguments that are still common today:

** The dangers have not been proven;

** Animal studies cannot tell us what we need to know about humans;

** Efficiency requires us to adopt new technologies even though some people may have to be sacrificed;

** People should act strictly upon available facts, not upon fears for the future or opinions about what MIGHT occur.

Sometimes these arguments were combined. For example, Frank A. Howard representing the Ethyl Corporation, said "Our continued development of motor fuels is essential in our civilization.... Now, as a result of some 10 years' research on the part of the General Motors Corporation and 5 years' research by the Standard Oil Co., or a little bit more, we have this apparent gift of God---of tetraethyl lead...

"...Because some animals die and some do not die in some experiments, shall we give this thing up entirely?... I think it would be an unheard-of blunder if we should abandon a thing of this kind merely because of our fears.... Possibilities can not be allowed to influence us to such an extent as that in this matter. It must be not fears but facts that we must be guided by. I do not think we are justified in trying to reach a final conclusion in this matter on fears at all; nor are we justified in saying that we will cease this development because of fears we entertain. This development should be stopped, if it is stopped at all, by proofs of the facts." [1,pg.106]

Dr. Robert Kehoe, a medical consultant to the Ethyl Corporation, gave a similar argument: "I must say, from the standpoint of industry, that when a material is found to be of this importance for the conservation of fuel and for increasing the efficiency of the automobile it is not a thing which may be thrown into the discard on the basis of opinions. It is a thing which should be treated solely

on the basis of facts." [1, pg. 70]

Since the "facts" could not include any poisonings until such poisonings had already occurred (until they occurred, they would be nothing more than speculative "fears" or "opinions"), the argument for basing policy strictly on "facts" produced a policy of experimenting on the public and waiting for the sick and the dead to accumulate. This, then, became the official way of doing business in the U.S. Today the language is slightly different; we hear calls for policy based on "sound science" (not on "facts") but it is the same argument.

Shortly after the May conference, Dr. Emery Hayhurst --a paid consultant to the Ethyl Corporation --wrote an unsigned editorial for the AMERICAN JOURNAL OF PUBLIC HEALTH titled "Ethyl Gasoline." [4] (He was a member of the JOURNAL's editorial board.) In it, he described newspaper advertisements by the Ethyl Corporation which claimed that leaded gasoline was being used around the country with "complete safety and satisfaction." Hayhurst's editorial concluded, "Observational evidence and reports to various health officials over the country, previous to and following the above advertisements have, so far as we have been able to find out, corroborated the statement of 'complete safety' so far as the public health has been concerned."

The May, 1925, conference ended with a unanimous resolution calling upon the U.S. Surgeon General to appoint a seven-member blue-ribbon panel to render an opinion on the dangers of lead by January 1, 1926. For about six months, the committee studied 252 garage mechanics, filling station attendants and chauffeurs in Dayton and Cincinnati and concluded, "There are at present no good grounds for prohibiting the use of ethyl gasoline." In sum, the "facts" argument overwhelmed the precautionary principle.

In June, 1926, GM, DuPont, Standard Oil of New Jersey and their joint venture, the Ethyl Corporation, started selling leaded gasoline again, and they continued to do so until Congress finally outlawed it completely in 1989. [5] They still sell their brain-damaging product in third-world nations today. Between 1926 and 1985, 7 million metric tons of toxic lead dust (15.4 billion pounds) were distributed into the environment by the automobile corporations.

In 1965, MIT professor Clair C. Patterson examined the situation and concluded that "the average resident of the United States is being subjected to severe chronic lead insult." [6] Patterson went on, "Intellectual irritability and disfunction are associated with classical lead poisoning, and it is possible, and in my opinion probable, that similar impairments on a lesser but still significant scale might occur in persons subjected to severe chronic lead insult." Subsequent studies have confirmed and reconfirmed this view.

The period of greatest lead use was 1945-1971, after which it began to decline. In those years, 165,000 to 275,000 TONS of lead dust spewed from the exhaust pipes of American automobiles EACH YEAR. Americans born during these years have 300 to 1000 times as much lead in their bodies as pre-Columbian indigenous people had. [7] Thus the generation of decision-makers in power today --in government and in corporations -- is made up of people who are suffering mental irritability and disfunction as a result of severe chronic lead insult. Reviewing the history of the past 25 years, it seems clear that the nation and the world have already paid a terrible price for their irritability and disfunction. Leadership by the most lead-damaged (those born around 1970) lies just ahead.

--Peter Montague (National Writers Union, UAW Local 1981/AFL-CIO)

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[1] Treasury Department, United States Public Health Service,

PROCEEDINGS OF A CONFERENCE TO DETERMINE WHETHER OR NOT THERE IS A PUBLIC HEALTH QUESTION IN THE MANUFACTURE, DISTRIBUTION OR USE OF TETRAETHYL LEAD GASOLINE [PUBLIC HEALTH BULLETIN NO. 158] (Washington, D.C.: Treasury Department, United States Public Health Service, 1925). Available from William Davis at the National Archives in Washington, D.C.: (202) 501-5350. [National Archives Record Group No. 287; T27.12:158/3S1 [possibly 351?] 24/2316 Box T777. RG 287.]

[2] See David Freestone and Ellen Hey, "Origins and Development of the Precautionary Principle," in David Freestone and Ellen Hey, editors, THE PRECAUTIONARY PRINCIPLE AND INTERNATIONAL LAW (The Hague, London, and Boston: Kluwer Law International, 1996), pgs. 3-15.

[3] David Rosner and Gerald Markowitz, "A 'Gift of God?': The Public Health Controversy over Leaded Gasoline during the 1920s," AMERICAN JOURNAL OF PUBLIC HEALTH Vol. 75, No. 4 (April 1985), pgs. 344-352.

[4] "Ethyl Gasoline," AMERICAN JOURNAL OF PUBLIC HEALTH Vol. 15 (1925), pgs. 239-240. Rosner and Markowitz, cited above, pg. 347 identify Hayhurst as the author of the anonymous editorial, based on his correspondence with R.R. Sayers of the U.S. Bureau of Mines.

[5] Jerome O. Nriagu, "The Rise and Fall of Leaded Gasoline," THE SCIENCE OF THE TOTAL ENVIRONMENT Vol. 92 (1990), pgs. 13-28.

[6] Clair C. Patterson, "Contaminated and Natural Lead Environments of Man," ARCHIVES OF ENVIRONMENTAL HEALTH Vol. 11 (September 1965), pgs. 344-360.

[7] Bruce A. Fowler and others, MEASURING LEAD EXPOSURE IN INFANTS, CHILDREN, AND OTHER SENSITIVE POPULATIONS (Washington, D.C.: National Academy Press, 1993), pgs. 14-15, 107.

Descriptor terms: lead; precautionary principle; general motors; dupont; ethyl corporation; standard oil of new jersey; endocrine disruptors; hormone disruptors; hormones; tetraethyl lead; gasoline; public health; epa; robert kehoe; joseph aub; automobiles; oil industry; alice hamilton; e.r. hayhurst; r.r. sayers; bureau of mines; u.s. public health service; yandell henderson; american federation of labor; afl; grace burnham; a.l. berres; haven emerson;